

MORRISON & FOERSTER LLP

SAN FRANCISCO
LOS ANGELES
SACRAMENTO
ORANGE COUNTY
PALO ALTO
WALNUT CREEK
SEATTLE

ATTORNEYS AT LAW

2000 PENNSYLVANIA AVENUE, NW
WASHINGTON, D.C. 20006-1812
TELEPHONE (202) 887-1500
TELEFACSIMILE (202) 887-0763

NEW YORK
DENVER
LONDON
BRUSSELS
HONG KONG
TOKYO

June 11, 1996

Writer's Direct Dial Number
(202) 887-1510

By Messenger

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: Ex Parte Communication -- WT Docket No. 95-116

Dear Mr. Caton:

Pursuant to Section 1.1206 of the Commission's rules, 47 C.F.R. § 1.1206, I report that representatives of Lockheed Martin Information Management Services ("Lockheed Martin IMS"), Jeffrey Ganek, Senior Vice President; Joseph Franlin, Vice President; Greg Roberts, Technical Systems Manager; Mark Foster, consultant with MDF Associates; and I met on Monday, June 10, 1996 with Carol E. Matthey, Deputy Division Chief, Policy and Program Planning Division, Common Carrier Bureau, and members of the Number Portability Task Force, copied below, to discuss the above captioned proceeding.

Lockheed Martin IMS made a presentation based upon the attached set of slides. Pursuant to Section 1.1206(a)(2) of the Commission's rules, an original and one copy of this transmittal letter are being submitted to the Office of the Secretary for inclusion in the public record. Please direct any questions or concerns to the undersigned.

Very truly yours,



Cheryl A. Tritt
Counsel for Lockheed Martin Information
Management Services

Attachments

cc: Mary De Luca
Marian Gordon
Melinda S. Littell
Susan E. McMaster
Jeannie Su

041

Long Term Number Portability

C C Docket 95-116

Lockheed Martin IMS

June 10, 1996



Number Portability Discussion

- Local Number Portability (LNP) must be implemented expeditiously to provide consumers the benefits of local exchange competition.
- Chicago LNP project designed through carrier consensus under auspices of state commission to offer services by mid '97. Project can be readily extended beyond Chicago LATA 358.
- Lockheed Martin IMS, a neutral, experienced leader in database administration, selected by carriers in Illinois to deploy and operate the Number Portability Administration Center (NPAC) in Illinois.
- Fully support open, consensus approach of various state LNP workshops. Significant, ground-breaking, progress has been achieved.
- Capabilities exist to implement LNP database administration now and will not impede early deployment of LNP generally.
 - LNP database administration should not be confused with number administration: LNP routing database administration is distinct from managing numbering resource, either at a 10, 6, or 3-digit level.
- Local/regional NPAC and LNP deployment does not usurp national policy making objectives, but instead serves as a foundation to support national policies.

LNP Discussion (cont.)

- Chicago NPAC is standards-based on open interfaces -- treats all carriers equally. System supports LRN but does not preclude evolution of LNP implementation architecture.
- Structure of NPAC services pricing to carriers or their contracting entities (e.g., LLC) is not directly dependent upon cost recovery methods: outstanding cost recovery issues should not delay deployment of LNP.



Lockheed Martin Involvement in LNP

- Lockheed Martin is a world class, \$30B systems integrator and services provider.
- Lockheed Martin neutrality: not a telecom carrier nor telecom services provider. No commercial interests in contents of LNP database nor any prejudicial commercial relationships that would preclude evenhanded treatment of competing service providers.
- Currently operates the 800 NASC under contract from DSMI, for 800 number portability.
- Lockheed Martin IMS selected by Illinois Number Portability Workshop service providers to deploy the Number Portability Administration Center (NPAC) / Service Management System (SMS) for Chicago MSA 1:
 - Develop and deploy NPAC SMS systems and communications network.
 - Staff and operate NPAC service center as neutral third party administrator.
 - Selecting service providers were: Ameritech, AT&T, MCI, MFS, Sprint, Teleport (TCG).
- Aims to offer NPAC services in other states and jurisdictions.



What is LNP Administration?

- Permanent LNP uses a database to route calls to portable numbers.
- Copies of LNP database resident in participating networks for efficiency, but master database maintained by neutral third party.
- For every ported number (TN), the master LNP database stores:
 - The network address (LRN) for call routing.
 - The SS7 addresses for routing non-call associated signaling (SS7 TCAP) to actual destination (e.g., for LIDB, CLASS features, ISVM, CNAM, and eventually HLR/VLR).
 - The current local service provider (LSP).
- Basic processes which involve LNP administration (i.e. when a portable number is involved):
 - Installation (end-user ports from one LSP to another)
 - Repair
 - Disconnect
- Basic functions include:
 - Coordinating service order processing between porting service providers.
 - Propagation of database updates (downloads) upon service order completion.
 - Housekeeping (user support calls, audits, reports, billing, mass changes, etc.).



LNP vs. Number Administration

Activity	Performed By	Functions
LNP Data Administration	NPAC	<ul style="list-style-type: none">• Maintains mapping of portable numbers (TNs) to routing information (e.g., LRN) for local LNP area as specified by serving LSP. Minimum NPAC function.
Portable Number Admin (Vacant Number Pooling)	? NPAC-like	<ul style="list-style-type: none">• Vacant numbers in portable NXXs in an area are pooled for shared use by LSPs.• Future capability which requires inter-rate center location portability to support.• 10-d TN number administration: search, assign, activate, disconnect, etc. Analogous to 800 today.
Portable CO-code (NXX) Admin	State LNP Workshop	<ul style="list-style-type: none">• Designation and administration of local NXXs that are to be opened for porting.• Being de-facto performed for Chicago by Illinois LNP workshop (Operations subcommittee).
CO-code Admin	LEC / NANC	<ul style="list-style-type: none">• Allocation and assignment of office codes (NPA-NXXs) to switches/LSPs: 6-digit administration.
NPA Admin	NANPA / NANC	<ul style="list-style-type: none">• Allocation and assignment of NPAs to geographic regions: 3-digit administration.

Number Pooling

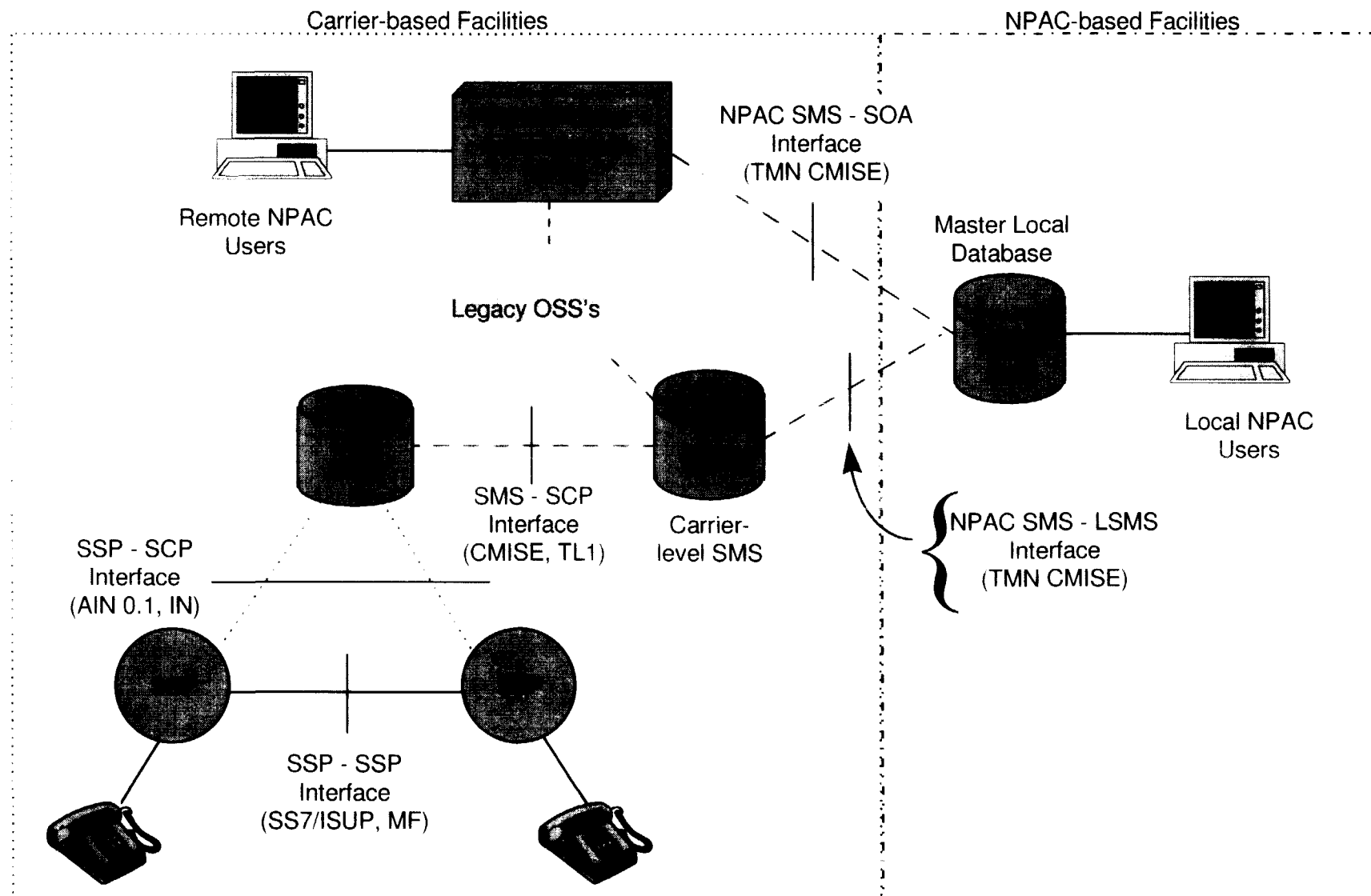
- LNP offers a mechanism to defer NANP exhaust: number pooling.
- Significant NANP resource is stranded on end-offices not likely, geographically, to experience high fill rates. With pooling, this resource is aggregated and made available to all LSP's in high-demand areas.
- Pooling, while enabled in part by LNP, is not essential to LNP itself, but could be slated for subsequent phases of LNP deployment.
- Pooling effectively requires location portability outside of the rate center:
 - To be effective, numbers should be portable across existing rate center boundaries: revision to existing rate center concept.
 - Additional call recording parameters to record necessary rating and billing info at time of call.
 - New rating algorithms in billing systems to use enhanced call recording formats, or perform 10-digit data lookup for rating.
- NPAC or similar neutral third party administration would operate master pooled number database for number searches, assignment, etc.
- Similar to 800 number administration today.



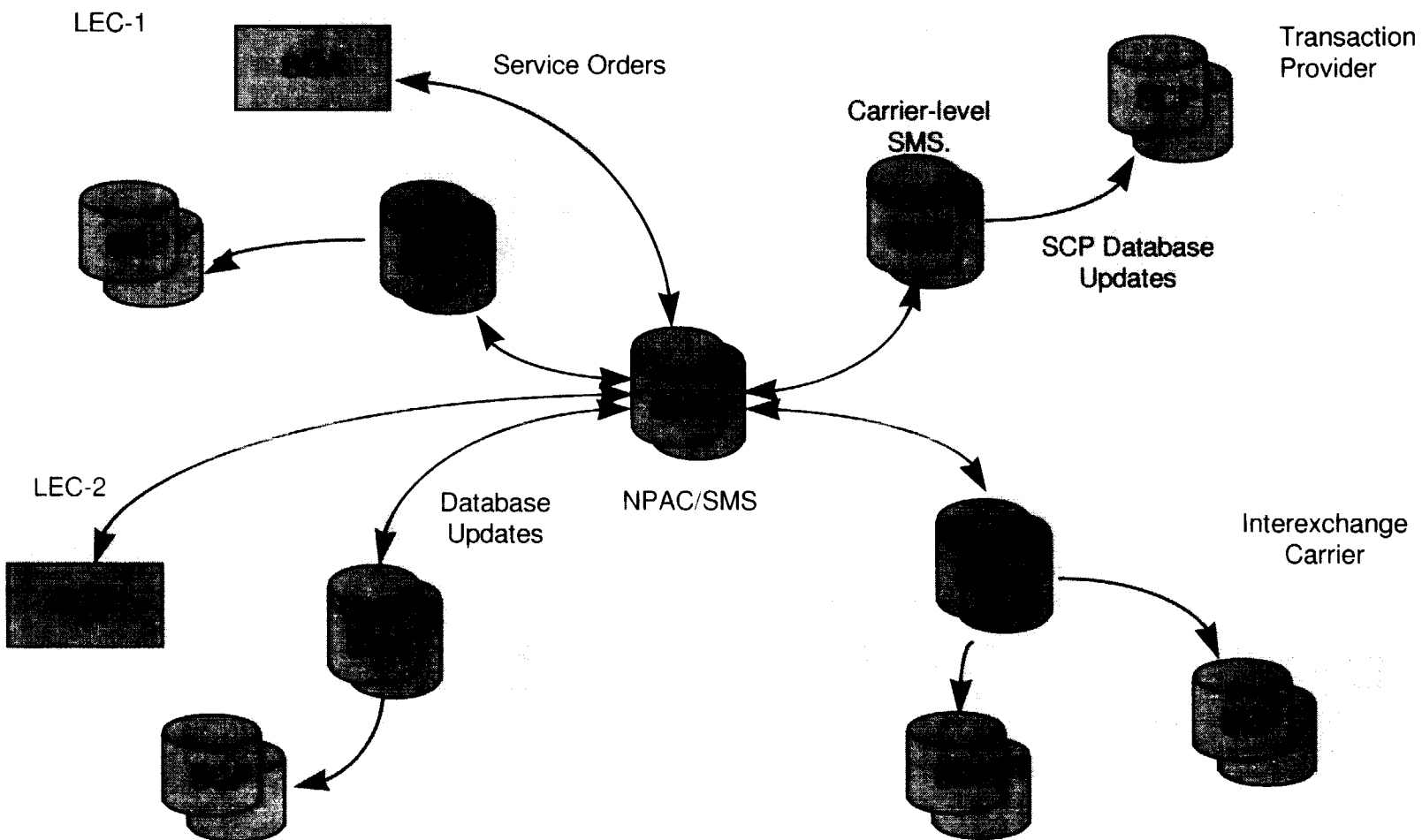
NPAC Interfaces to Service Providers

- To streamline NPAC services, most NPAC services will be provided directly to carrier systems via mechanized (machine-to-machine) interfaces.
- Two primary types of interfaces:
 - SOA: service order processing
 - LSMS: database updates.
- First release, including service provider and vendor review, of these interfaces will be out shortly.
- Host a three day interface forum for carriers and vendors.
- Uses standards-based communications and security technologies (TCP/IP, OSI network management protocols [CMIP]).
- Interface specifications will be made public and submitted to appropriate standards bodies (e.g., ANSI T1M1) as proposed standards.
- Uses object-oriented information modeling, and standards-based specification language (GDMO), for ease of extensibility.

LNP Architecture Reference



Hierarchical LNP Administration



SOA: Service Order and Administration Center

NPAC/SMS Implementation for Illinois

- Primary NPAC facility based in Chicago, initially to support Chicago MSA 1.
- Backup data center, with replicated database and facilities, in Tarrytown NY.
- Can be readily expanded to support additional jurisdictions.
- Highly secure LAN in each data center, and WAN for interconnection of data centers with service providers.
- Supports LRN in concert with generic requirements developed in the Illinois workshop guiding switch and other vendor development.
- Designed to support anticipated future LNP enhancements:
 - Location Portability
 - Service Portability
 - Wireless Participation
 - Number Pooling
 - Geographic Expansion
 - Baseline LRN Enhancements
 - Billing Enhancements
 - Direct Reseller Support
- 7x24 operation.
- Routing database updates available in 'real-time.'
- User support (help-desk) accessible via phone, fax, email, etc.

Illinois Schedule

- RFP Received 2/1/96
- Proposal Submitted 3/15/96
- Selection Notice Received 4/19/96
- Initial Draft of Mechanized Interface Specification Released 5/17/96

Current working schedule:

- Interface Specifications Frozen with Service Providers 7/16/96
- NPAC Deployed, Start of Interconnection Testing 1/13/97
- NPAC Fully Operational 4/14/97
- Start of Live LNP in Chicago MSA 1 7/1/97

Lockheed Martin is participating in Illinois workshop committees to coordinate deployment, testing, functional and technical requirements, with other Illinois LNP activities.



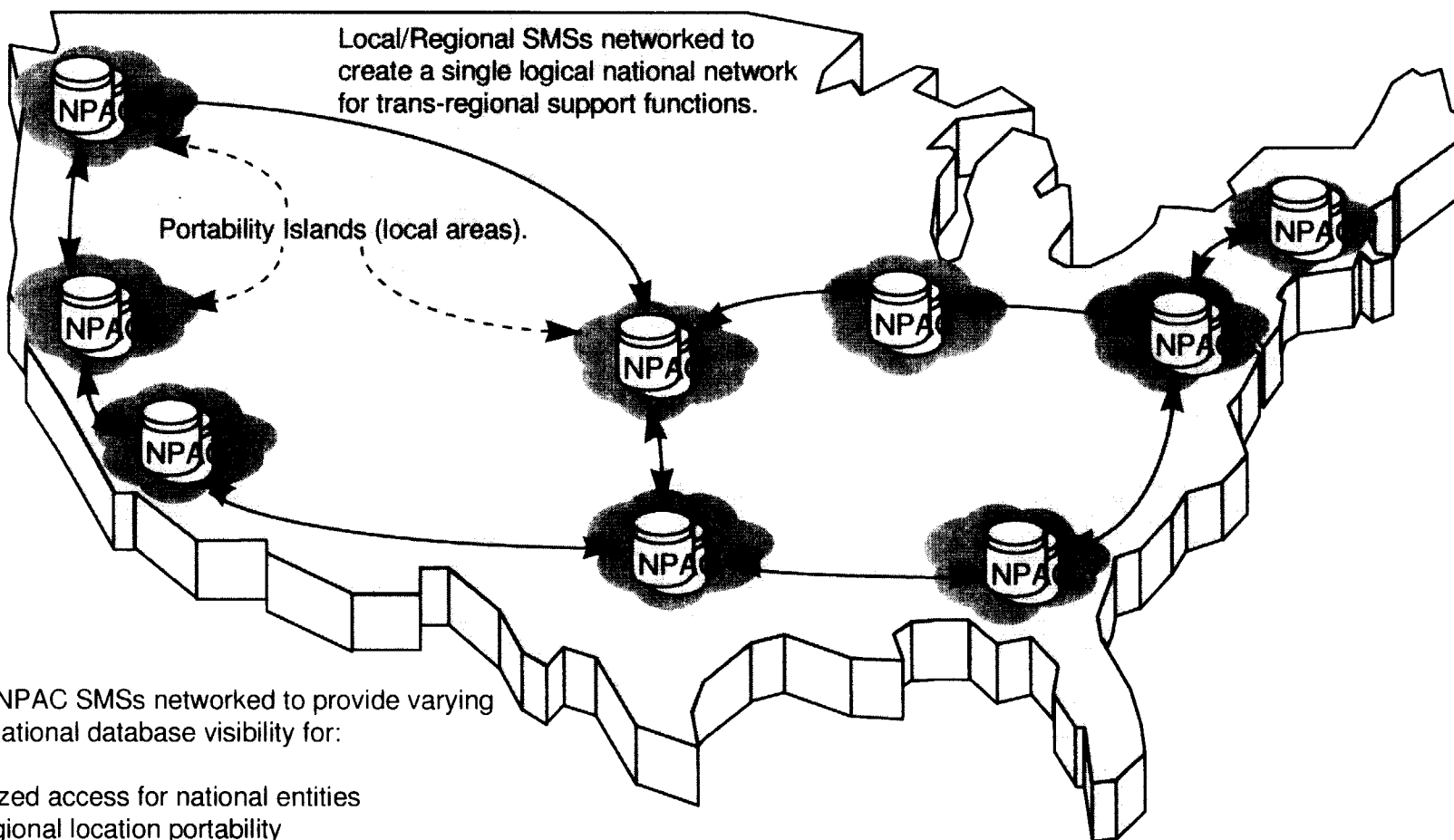
Generic NPAC Considerations

- For minimal NPAC services (LNP routing data administration), only actual ported numbers are stored in NPAC database.
- LNP administrative policies defined by appropriate regulatory (e.g. FCC, state PUC) and industry (state LNP workshop, ICCF) entities for NPAC jurisdiction: NPAC implements defined policies.
- NPAC services provided on a turnkey service bureau basis.
- Primarily transaction-based pricing to NPAC users.
- Flexible resource accounting and usage billing/reporting to enable service providers to re-apportion NPAC costs amongst themselves along yet-to-be-determined cost recovery bases.
- NPAC service elements not directly driven by cost recovery policy: usage sensitive billing and reporting must be detailed enough to support the cost recovery basis employed (e.g., per portable TN, per portable NXX)
- NPAC enables cost categorization: e.g., generic costs may be shared, and discretionary costs born directly by the requester of those services to create appropriate cost incentives.

Deployment Strategy

- Envision NPAC services to be deployed initially in support of those metro areas (MSAs) that deploy LNP.
- Many new local service providers are national companies (e.g., AT&T, MCImetro, etc.)
- NPACs do not necessarily need to be local to their serving area.
- Multiple jurisdictions can be served from a common facility.
- Databases and systems supporting multiple jurisdictions are partitioned to create firewalls to prevent adverse inter-jurisdictional load impacts.
- As LNP is further deployed beyond initial MSAs, regional NPACs may be networked together to support inter-regional activities.
- Standardized NPAC-LSP mechanized interfaces will facilitate administrative support of LNP as it's deployed.
- Standardized inter-NPAC interfaces will facilitate smooth deployment of LNP administration between regions.
- Regional deployment policy enables local autonomy in schedule and selection, without precluding evolution to wider scale of interoperability.

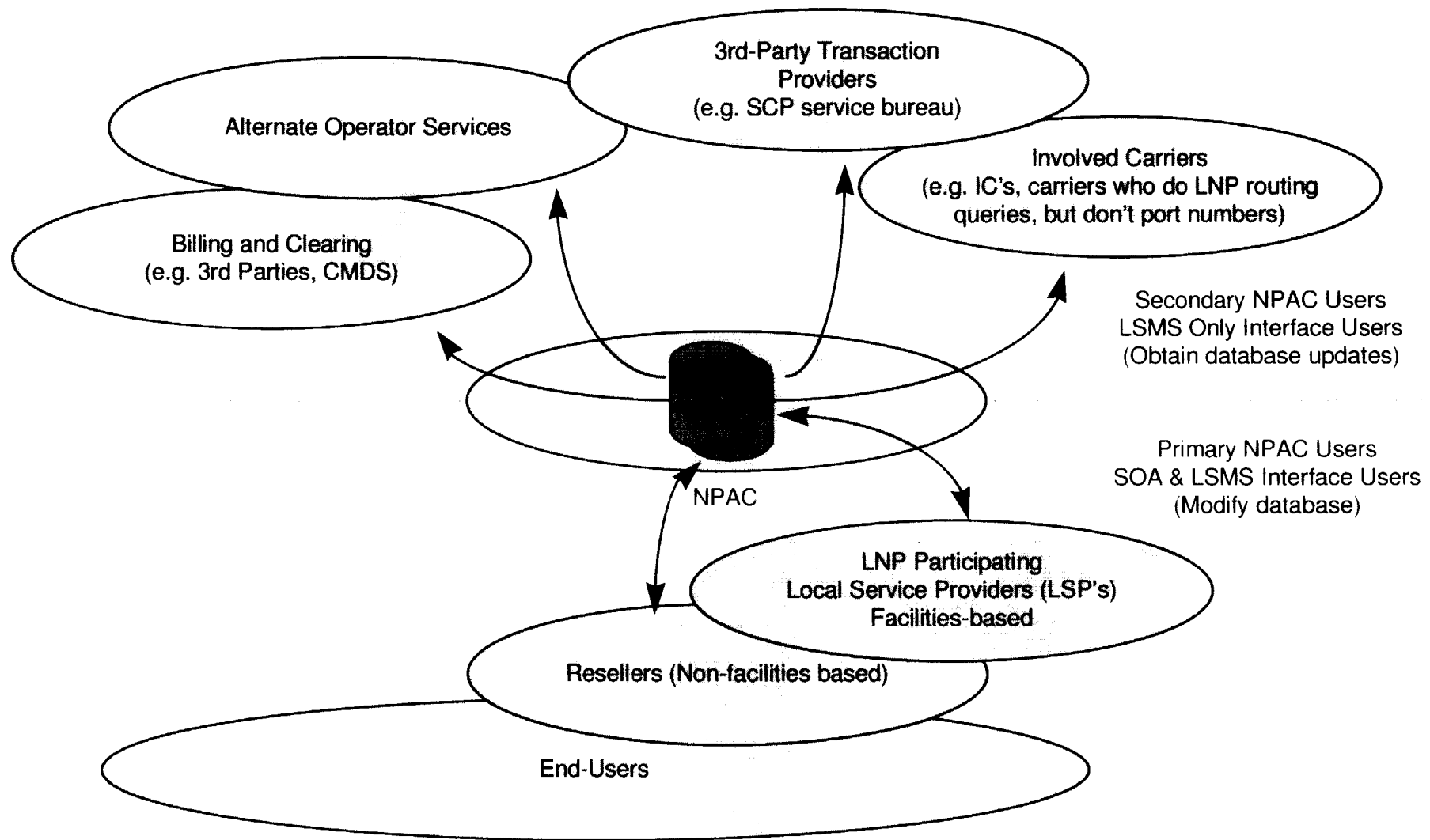
National Admin: Network of Local/Regionals



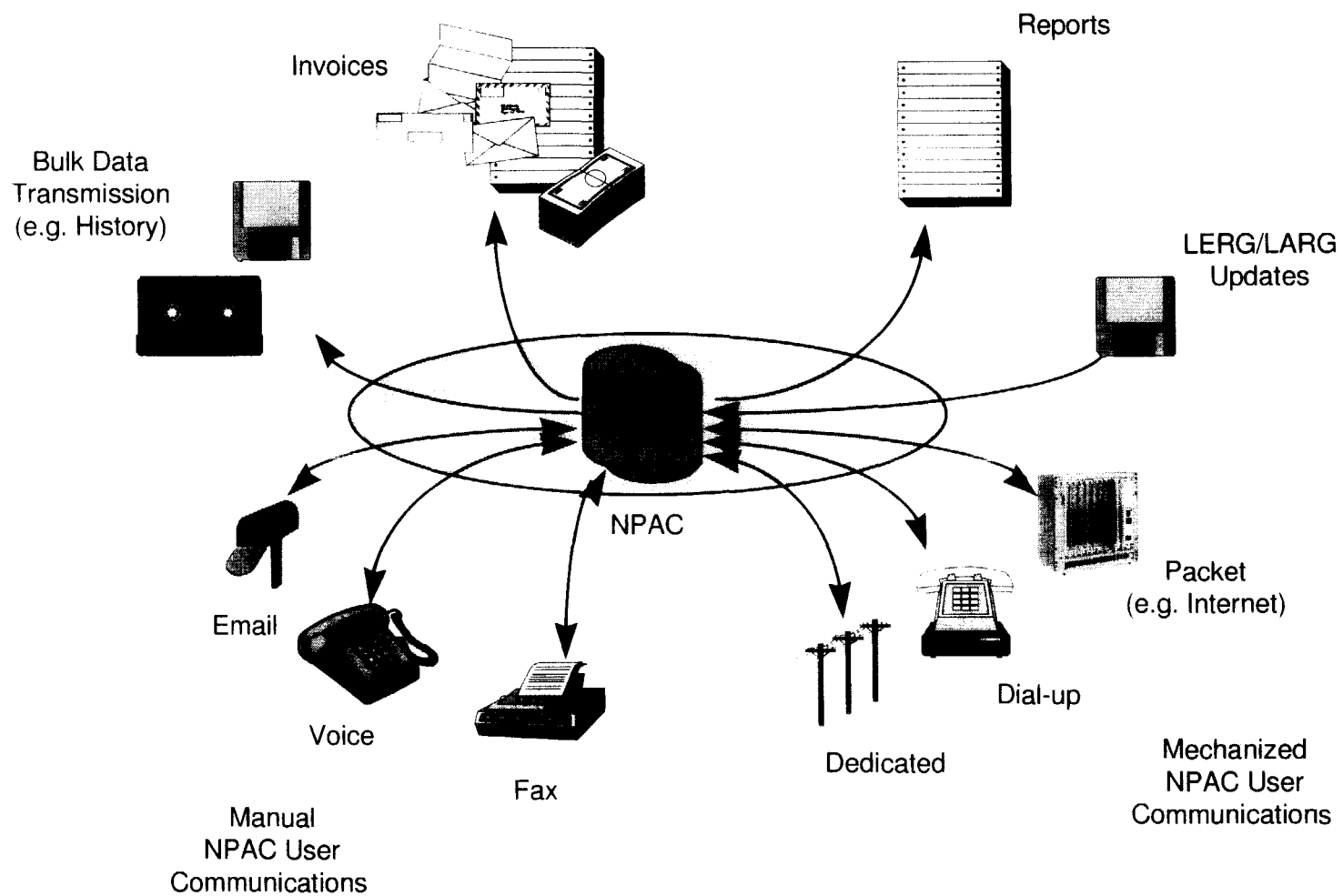
Regional NPAC SMSs networked to provide varying levels of national database visibility for:

- Centralized access for national entities
- Inter-region location portability
- Portable number administration
- Number resource reporting and management

NPAC Users



NPAC Facilities



Summary

- Capabilities exist to implement LNP database administration now and will not impede early deployment of LNP generally.
- LNP administration has both local, regional, and (ultimately) national, requirements that can best be accommodated through an hierarchical administrative network.
 - Such an architecture enables local/regional deployment, recognizing the continuing geographic significance of portable numbers initially, but can expand to support long-term wide-scale LNP.
- Initial NPAC deployments should be local/regional in scope in concert with the scope of initial LNP deployments (assumed to be initially top MSAs).
- Local/regional NPAC and LNP deployment does not usurp national policy making objectives, but instead serves as a foundation for national policies.
- NPAC interfaces are being jointly developed along an accelerated track for industry acceptance and standardization.
- Pricing structure of NPAC services is not directly dependent upon eventual cost recovery mechanisms.



Summary (cont.)

- LNP data administration should not be confused with number administration:
 - LNP routing data administration is distinct from managing numbering resource, either at a 10, 6, or 3-digit level.
- LNP data administration is largely call model independent -- mapping of portable numbers to routing data is inherent to LNP. Routing data is assigned by LSPs. Evolution and enhancement of LRN in Illinois is planned and anticipated.
- Storage costs (< \$1/MB) today are low enough that database sizes are not a driving factor in SMS costs, but instead transaction and communications volumes are.
 - Due to end-user benefits, public policy interests suggest that LNP administration be considered to perform portable number administration eventually for number pooling, leveraging the database and communications infrastructure already required for basic LNP.
- Fully support the open, consensus, approach within the Illinois and other states LNP workshops.
- Significant, ground-breaking, progress has been achieved.